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TEETH AND TOOTHACHE.

Of teeth it may be said that that man is happiest who is unconscious of them. We do not mean as an ornament. It is true that some peoples, as Montaigne says, 'take great care to black their teeth, and hate to see them white; whilst others paint them red.' Europeans have a taste of their own in the matter, and love to see them white. For proof consult contemporary fiction *passim*, where even the villains have a fine set to show, and know it. Let Herrick sing of the rubies and pearls of his Julia's mouth; teeth for the present purpose are not jewels. They are to be regarded as the 'fons et origo mali,' and that evil is toothache.

Toothache is as old as sin, and as universal. To erring man it might figure as a form of final torture. It must have been part of the punishment of our primeval parents, whose doom we inherit. The first that an infant knows of teeth is pain; from the cradle to the grave they are an active source of annoyance. Some there be, indeed, who say not without pride that they never had a touch of toothache in their lives. But call not a man happy till he is dead. Hereafter writhing in anguish, they shall assuredly repent the premature boast. And there are strong men and the like who misuse their teeth to lift surprising weights, or, emulating that terror of the Spaniards and hero of the *Revenge*, Sir Richard Grenville, chew glasses up without a grimace. 'Blind mouths' (to pervert Milton's phrase), they do not look to the end—the fevered gums, the dull unceasing ache, the shooting spasm, as if a red-hot needle were thrust into the brain. If a man does altogether escape the fell disease, one is tempted to ascribe to him a low order of nervous organisation. He must be 'only an animal, only sensible in the duller parts.' Nay, he is even lower than that, for animals, too, have toothache, and especially such as possess a high degree of intelligence. The dog and the horse are well-known sufferers. On the authority of a quaint old French book on the subject,

we may add the wolf; and the hippopotamus endures quite a great pain from its teeth, so that it is constrained to get out of the water to find a remedy.'

This book is one of the earliest modern authorities on toothache that we have discovered. It is scientific, as science went in 1622. Its author, one Maistre Arnauld Gilles, was apparently court dentist, for he dedicates his book to Marie Henriette de Bourbon, sister to the reigning king; and it is published at the appropriate sign of the Three Golden Teeth, in Paris. It is remarkable, we may say in passing, that the literature of toothache is so meagre. An ailment of such ancient standing in the world's history might be expected to obtain more frequent and detailed notice. Such modern treatises as exist are purely technical, and undeserving of the name of literature. There is in them nothing historical, nothing human and sympathetic to the view of the sufferer. Even in the ordinary life of to-day there is no disease which gains us so little pity from our friends. It is not fatal, they say, and are apt to be impatient with our groans. And we ourselves, once the attack is over, straightway forget what manner of torture it was, and go unthinkingly about our daily business. Now, this is surely wrong. It may be true that toothache never killed anybody directly; but assuredly, if analogy goes for anything, it has been the cause of crime and death. Imagine an absolute monarch with an obstinate tooth. It would be a grim amusement to him, almost a necessity, to sign a death-warrant. There have been martyrs to toothache in another than the ordinary usage of the term.

But to return to Maistre Arnauld. The first thing to note is that he advises the specialisation of dentistry. 'It is very necessary that dentists should have no other vocation.' He has known instances where patients have died from hemorrhage because the ignorant drawer of teeth did not know how to stop the bleeding. The world, he says, by way of peroration, may think the title 'Drawer of teeth' strange, and perhaps

despise it. But Maistre Arnauld glories in it as very useful to the public, 'and does not do, like an infinity of others, who, coming to this town [of Paris], call themselves Grand Operators. He is happy to do his task well, to take the little fee that is given him, and is never ill-content.' It is only lately that in England the Royal College of Surgeons recognised dentistry as a special branch of medicine. Some twenty-five years ago their dental certificate was established. Before that, the craft was confined to tooth-drawing mainly, and had for its professors the local barber, blacksmith, or watchmaker. We are now beginning to see that unlicensed practitioners do a lot of mischief. The ancient Egyptians were before us in this field; for Herodotus tells us that no doctor in Egypt was permitted to practise any but his own peculiar branch, and some attended solely to diseases of the teeth. Proofs of their skill have been found in some mummies at Thebes whose teeth were stuffed with gold.

So much for the disease; but what of the cure? Maistre Arnauld gives several prescriptions, but they are commonplace compared with more ancient remedies. Here are two methods from Pliny: Put your hands behind your back; bite off a piece of wood from a tree which has been struck by lightning, and apply it to the ailing tooth. Or you may fumigate the tooth with the tooth of another of the same sex—how that is done we are not told—and bind the canine tooth of an unburied corpse to it. Habdarrahman on Egyptian medicine advises that the molar of a dead man—whether buried or not apparently does not matter—be hung over the groaning sufferer, and the pain will abate. Others, again, say: 'Burn a wolf's head and keep the ashes. They are a great remedy.' It is difficult to cap the piquancy of such cures; but Sir Thomas More has done it; and his prescription has the advantage of not requiring such inaccessible materials. 'I have heard it taught me,' he says in 1557, 'for the toothache to go thrice about a churchyard and never think on a fox's tail.' This reminds one in its malicious pleasantry of 'Don't nail his ears to the pump,' for the suggestion of foxes' tails in connection with churchyards, though not very obvious to the common man, must always and inevitably recur to those who tried the cure.

The man in dental anguish sometimes curses with Burns 'the venom'd stang that shoots his tortured gums alang.' Sometimes, on the other hand, he prays. St Augustine in his *Confessions* relates how he once suffered from 'dolor dentium' (toothache), apparently in an aggravated form, for he could not speak. Thereupon, he wrote on wax a prayer to God for the other brethren to repeat; and as soon as all were on their knees the pain went. 'But what a pain!' he says—'never since my tender age had I experienced the like.' Southey, in his *Life of John Wesley*, tells of that eminent preacher that when his own tooth ached he prayed, and the pain left him. Unfortunately, ordinary men do not seem to have such efficacious faith. When the exorcism begins they must bear it philosophically; and on Shakespeare's authority toothache finds out just the weak place in the philosopher's armour of patience. In the middle ages the devout who

were racked with pain had a special patron to whom they could call for deliverance. St Apollonia, a martyr under the Emperor Philip, among other cruel indignities had her teeth pulled out. In consequence, she became toothache's tutelary saint, as her emblems—one of which is 'holding a tooth in pincers'—sufficiently testify. And there would seem to have been yet another martyr, St Blaize, who took cognisance of the disease. He was honoured in the little town of St Blaize, in Cornwall, where candles offered upon his altar were supposed to be an infallible cure for toothache.

Perhaps something may be added on the subject of toothpicks. These are said to have been invented in Italy. Certainly they were in common use among the Romans. In Martial's Epigrams there are frequent references to the 'dentalpium,' sometimes reviling its abuse, sometimes praising its use. The particular form of toothpick which Martial preferred was a pointed strip of mastic-wood; but, in default of that, he recommends a quill. Singularly enough, the useful instrument was regarded as an innovation in Queen Elizabeth's time. The Bastard, in *King John*, sneers at

Your traveller—
He and his toothpick at my worship's mess.

Travellers in France and Italy, it seems, brought toothpicks back, and used them ostentatiously; and all those who affected foreign fashions sedulously imitated them. Commonly a case of toothpicks made of wood was carried about by fine gentlemen. A more violent eccentricity of fashion is pointed at by Sir Thomas Overbury, who describes a courtier as walking in St Paul's 'with a picktooth in his hat, a cape cloak, and a long stocking.' Apparently the 'Johnny' of the present day, who is so unremitting in his use of the homely quill, has inherited the toothpick and his flourishing display of it from the coxcombs that thronged the court of the Virgin Queen.

THE IVORY GATE.*

BY WALTER BESANT.

CHAPTER XXXIII.—THE THREE ACCOMPLICES.

ON that same evening the three accomplices—probably on the proceeds of their iniquities—were dining together at the Savoy. After dinner they sat on the veranda overlooking the river and the Embankment. 'Tis sweet, what time the evening shades prevail, while one is still in the stage of physical comfort and mental peace attendant upon an artistic little banquet, to view from the serene heights of a balcony at that hotel the unquiet figures of those who flit backwards and forwards below. They—alas!—have not dined so well, or they could not walk so fast, or drag their limbs so hopelessly, or lean over the wall so sadly.

Elsie leaned her head upon her hands, looking down upon this scene, though not quite with these

thoughts. Young ladies who are quite happy, and are going to be married next week, do not make these comparisons. Happiness is selfish. When one is quite happy, everybody else seems quite happy too—even Lazarus and the leper. We must never be happy if we do not wish to be selfish.

Coffee was on the table. Athelstan had a cigar. They were all three silent. During dinner they had talked gaily, because everybody knows that you cannot talk with strange people listening. After dinner they sat in silence, because it is only when the waiters are gone that one is free to talk.

'Elsie,' said George presently, 'you have something to tell us—something you have discovered. For my own part, since I handed the case over to anybody else, I feel as if I were not interested in it. But still, one would like to know—just for curiosity's sake—when Checkley is to be "run in."

'Yes,' said Elsie, 'I must tell you. Perhaps I ought to have told you before. Yet there was a reason. Now—you will be greatly astonished, George.'

'Before you begin, Elsie!'—Athelstan removed his cigar—'I must tell you that yesterday evening I, too, made a discovery—what the Americans call a pivotal discovery—a discovery that covers everything. I should have told you last night, but you announced your communications for this evening, and I thought we would expose our discoveries at the same time.'

'You have found out, too!' Elsie cried. 'I see by your face that you have. Well, Athelstan, so much the better. Now, tell your discovery first, and I will follow.'

'It is this. I have discovered Edmund Gray. I have sat with him and discoursed with him, in Freddy Carstone's Chambers. He came in, sat beside me, and conversed for more than an hour.'

'Oh!' said Elsie. 'Then you know all—as much as I know.'

'Observe,' George interposed, 'that I know nothing as yet.'

'Wait a moment, George. Learn that I have myself known Mr Edmund Gray for a fortnight. You will think, perhaps, that I ought to have told you before.' Well—but there is a reason—besides, the way, to begin with, did not lie quite clear before me. Now the time has come when you should advise as to the best course to follow.'

'You have certainly been more mysterious than any oracle, Elsie. Yet you will bear witness, if it comes to bearing witness, that I accepted your utterances and believed in them.'

'You certainly did, George.—And now, Athelstan, tell him the whole.'

'In one word, then—Edmund Gray, the man we have been looking after so long, is none other than Edward Dering, of 12 New Square, Lincoln's Inn, Solicitor.'

'I don't understand,' said George, bewildered, 'Say it all again.'

Athelstan repeated his words.

'That is my discovery, too,' said Elsie. 'Now you know all, as you understand.'

'But I don't understand. How can one man be another man?'

'I sat beside one man,' Athelstan added, 'for an hour and more; and lo! all the time he was another man.'

'And still I am fogged. What does it mean?'

'It means, George, what you would never suspect. The one man received me as a stranger. He knew nothing about me: he had never heard my name, even. Yet the other man knows me well. It was very odd at first. I felt as if I was talking to a sleep-walker.'

'Oh!' cried George, 'I know now. You have seen Mr Dering in a kind of sleep-walking state—I too have seen him thus. But he said nothing.'

'You may call it sleep-walking if you like. But, George, there is another and a more scientific name for it. The old man is mad. He has fits of madness, during which he plays another part, under another name. Now, do you understand?'

'Yes—but—is it possible?'

'It is more than possible; it is an actual certainty. Wait. Let Elsie tell her story.'

Then Elsie began, with a little air of triumph, because it is not given to every young lady to find out what all the men have failed to find.

'Well—you see—I was always thinking over this business, and wondering why nothing was found out about it, and watching you look this way and that, and it occurred to me that the first thing of all was to find out this Mr Edmund Gray and lay hands upon him. At first I thought I would just go and stand outside his door all day long and every day until he came. But that seemed a waste of time. So I remembered how you found his door open, and went in and spoke to the laundress. I thought that I would do the same thing, and sit down there and wait until he should come. But I was afraid to sit in the rooms of a strange man all alone—no, I could not do it. So I just found out the old woman—the laundress—as you did, George, and I gave her money, and she told me that Mr Gray was at his Chambers almost every Saturday afternoon. Very well; if anybody chose to wait for him all Saturday afternoon, he would certainly be found. So on Saturday afternoon I took a cab and drove to Holborn, and got to the place before his arrival. But again, as it was not quite nice to stand at an open doorway in a public Square, I thought I would wait on the stairs. So I mounted—the doors were all closed—nobody was left in the place at all—I thought I should be perfectly safe and undisturbed, when I heard the noise of footsteps overhead—a tramp, tramp, tramp up and down, with every now and then a groan—like a hungry creature in a cage. This kept on for a long time, and frightened me horribly. I was still more frightened when a door overhead opened and shut and the footsteps came down-stairs. They belonged to a man—an elderly man—who seemed as much frightened at seeing me as I was at seeing him. He asked me whether I wanted any one; and when I said I wanted Mr Edmund Gray, he said that he was a friend of Mr Gray's, and that, since I was a friend too, I might act for Edmund Gray and lend him some money. He looked desperately poor and horribly hungry and thin and shabby, the poor old man!'

'So you acted for Edmund Gray. That was old Langhorne. He is a barrister, who lives in the garret, and is horribly down on his luck.—Go on.'

'Poor Elsie!' said George. 'Think of her, all alone on the staircase!'

'When he was gone, there was no sound at all. The place was perfectly quiet. The time passed so slowly—oh! so slowly. At last, however, I heard a step. It came up the stairs. Oh! my heart began to beat. Suppose it should be Mr Edmund Gray. Suppose it was some other person. Suppose it was some horror of a man! But I had not long to wait, because Mr Edmund Gray himself stood on the landing. He stared at me, rather surprised to find a young lady on the stairs, but he showed no sign of recognition whatever. I was a complete stranger to him.'

'And was the man Mr Dering?'

'He was—Mr Dering. There was just the least little change in him. He wore his coat open instead of buttoned. He had no gloves, his hat was not pulled over his eyes, and his face was somehow lighter and brighter than usual.'

'That is so,' said Athelstan. 'Exactly with these little changes he presented himself to me.'

'Perhaps there is another man in the world exactly like him.'

'Futile remark!—Go on, Elsie.'

'Then I guessed in a moment what it meant. I stepped forward and asked him if he was Mr Edmund Gray. And then I followed him into his rooms.—George, there is no manner of doubt whatever. Mr Dering has periods, whether regular or not I cannot tell, when he loses himself and becomes in imagination another man. He is mad, if you like, but there is method in his madness. The other man is just himself turned inside out. Mr Dering believes in the possible wickedness of everybody: the other man believes in the actual goodness of every man. Mr Dering considers Property the only stable foundation of society: the other man considers Property the root of all evil. Mr Dering is hard and jealous: the other man is full of geniality and benevolence. Mr Dering is Justice: the other man is Mercy.'

'Very neatly put, Elsie. There is quite an eighteenth-century balance about your sentences and sentiments. So far—Athelstan contributed his confirmation—'So far as I could judge, nothing could be more true. I found my man the exact opposite of himself.'

'Can such a thing be possible? If I were to speak to him, would he not know me?'

'You forget, George. You have seen him in that condition, and he did not know you.'

'Nothing is more common!—Athelstan the Journalist began to draw upon the encyclopaedic memory which belongs to his profession—than such a forgetfulness of self. Have you ever been into a Lunatic Asylum? I have—for professional purposes. I have discoursed with the patients, and been instructed by the physicians. Half the time many of the patients are perfectly rational: during the other half they seem to assume another mind with other memories. It is not real possession, as the ancients called it, because they never show knowledge other than what they have learned before. Thus, a sane man who cannot draw would, never in insanity become an artist. So Mr Dering,

when he is mad, brings the same logical power and skill to bear upon a different set of maxims and opinions. Said a physician to me at this asylum of which I speak: "There are thousands of men and women, but especially men, who are mad every now and then, and don't know it. Most of the crimes are, I believe, committed in moments of madness. A young fellow steals money—it is because at the moment he is so mad that he even persuades himself that borrowing is not stealing: that he is only borrowing: that he can get it back, and put it back, before it is found out. What is uncontrollable rage but sudden madness? There are the men who know that they are mad on some point or other, and cunningly hide it, and are never found out. And there are the men who are mad and don't know it. In their mad times they commit all kinds of extravagances and follies, yet somehow they escape detection." So he talked; and he told me of a man who was a lawyer in one town with a wife and family, and also a lawyer in another with a different wife and family. But one lawyer never found out the other; and the thing was only discovered when the man got a paralytic stroke and died in a kind of bewilderment, because, when the time came for him to be the other man, he found himself lying in a strange bedroom with a strange family round him. I had long forgotten the asylum. I did the place for my paper three or four years ago, and scored by the description. Since last night I have been recalling my experience and applying it. You see there can never be any physical change. This is no Hyde and Jekyll business. Whatever happens must be conducted with the same body and the same mind. The same processes of mind in which the man is trained remain, but his madness requires a new setting.'

'One cannot understand,' said Elsie.

'No. But then one cannot understand everything. That's the real beauty of this world: we are planted in the midst of things: we can give names to them—Adam began that way, didn't he?—but we can't understand any of them; and most people think that when we have given a name we have succeeded in understanding. Well, Elsie—we don't understand. But we may find out something. I take it that the other man grew up by degrees in his brain, so that there is no solution of the continuity of thought and recollection. The Edmund Gray developed himself. He has been developed for nearly ten years, since he has occupied the same Chambers all the time.'

'But about the forgeries? George sprang to his feet. 'I declare,' he cried, 'that I had quite forgotten the real bearing on our case.'

'Edmund Gray,' said Elsie, 'says that his own lawyer who manages his affairs is Edward Dering. If he were to write letters while Edmund Gray, he would not impose upon Edward Dering.'

'He cannot write to two men,' said Athelstan. 'There must be a border-land between the waking and the dreaming, when the two spirits of Edmund Gray and Edward Dering contend for the mastery, or when they command each other—when Edmund Gray endorses cheques and Edward Dering writes letters and conducts transfers for his client—his double—himself.'

'I have seen him in such a state,' said George. 'At the time I never suspected anything but a

passing trouble of mind, which caused him to be so wrapped up in his thoughts as not to be able to distinguish anything. He was then, I doubt not now, carrying out the instructions of Edmund Gray, or he was Edmund Gray acting for himself. Checkley whispered not to disturb him. He said that he had often seen him so.'

'I have never tried to understand,' said Elsie. 'But I saw that Edmund Gray was Mr Dering gone mad, and that he himself, and nobody else, was the perpetrator of all these forgeries; and I have been trying to discover the best way—the kindest way to him—the surest way for us, of getting the truth known.—George, this is the secret of my mysterious movements. This is why I have not given you a single evening for a whole fortnight. Every evening—both Sundays—I have spent with this dear old man. He is the most delightful—the most gentle—the most generous—old man that you ever saw. He is full of ideas—oh! quite full—and they carry you out of yourself, until you awake next morning to find that they are a dream. I have fallen in love with him. I have had the most charming fortnight—only one was always rather afraid that he might come to himself, which would be awkward.'

'Well, Elsie, have you found a way?'

'I think I have. First, I have discovered that when he is surrounded with things that remind him of Edmund Gray, he remains Edmund Gray. Next, I have found out that I can, by talking to him even at his office, when he has his papers before him, turn him into Edmund Gray.'

'You are a witch, Elsie.'

'She is,' said George, looking at her in the foolish lover's way. 'You see what she has turned me into—a long time ago, and she has never turned me back again.'

'I have been thinking too,' said Athelstan. 'For our purposes, it would be enough to prove the identity of Edmund Gray and Edward Dering. That explains the resemblance of the hand-writing and of the endorsement. My commissionnaire's recollection of the man also identifies the cheque as drawn by himself for himself under another name. It explains the presence of the notes in the safe. It also shows that the long series of letters which passed between him and the broker were written by himself for himself. Here, however, is a difficulty. I can understand Edward Dering believing himself to be Edmund Gray, because I have seen it. But I cannot understand Edward Dering believing himself to be the Solicitor to Edmund Gray and writing at his command.'

'But I have seen him in that condition,' said Elsie. 'It was while he was changing from one to the other. He sat like one who listens. I think that Edmund Gray was at his elbow speaking to him. I think I could make him write a letter by instruction from Edmund Gray. That he should believe himself acting for a client in writing to the broker is no more wonderful than that he should believe himself another man altogether.'

'Show me, if you can, the old man acting for an imaginary client. Meantime, I mentioned the point as a difficulty. Prove, however, to Mr Dering and to the other concerned that he is Edmund Gray, and all is proved. And this we can do by a host of witnesses.'

'I want more than this, Athelstan,' said Elsie. 'It would still be open to the enemy to declare that George, or you, or I, had made use of his madness for our own purposes. I want a history of the whole case written out by Edmund Gray himself—a thing that we can show to Mr Dering and to everybody else. But I dread his discovery. Already he is suspicious and anxious. I sometimes think that he is half conscious of his condition. We must break it to him as gently as we can. But the shock may kill him. Yet there is no escape. If the forgeries were known only to ourselves, we might keep the discovery a secret; and only, if necessary—but it would not be necessary—keep some sort of watch over him and warn the Bank. But Checkley has told the clerks and the people at the Bank, and there are ourselves to think of, and my mother and Hilda—No; we must let them all know.'

'And if one may mention one's self,' said Athelstan, 'my own little difficulty presses. Because, you see, I don't know how long I may be kept here. Perhaps to-morrow I might go on to St Petersburg or to Pekin. Before I go, Elsie, I confess that I should like my mother to understand that—that she was a little hasty—that is all.'

'You are not going to St Petersburg, brother.' Elsie took his hand. 'You are not going to leave us any more. You are going to stay. I have made another discovery.'

'Pray, if one may ask—'

'Oh! you may ask. I saw a letter to-day—Mr Dering showed it to me. It was written from the States three or four years ago. It showed where you were at that time—and showed me more, Athelstan—it showed me how you lost the pile of money that you made over that silver mine—you remember, Athelstan?'

He made no reply.

'Oh! do you think that I am going to accept this sacrifice?—George, you do not know. The donor of that great sum of money which Mr Dering held for me—we have often wondered who it was—I have only found out to-day—it was Athelstan. He gave me all he had—for such a trifling thing—only because I would not believe that he was a villain—all he had in the world—and went out again into the cold. He said he dropped his money down a gully or a grating on the prairie—some nonsense. And he sent it all to me, George.—What shall we do?'

'Is this really true, Athelstan? Did you really give up all this money to Elsie?'

'She says so.'

'It is quite true, George. I saw the letter—Mr Dering showed it to me—in which he sent that money home, and begged Mr Dering to take care of it, and to give it to me on the day when I should be one-and-twenty. He cannot deny it. Look at him. He blushes—he is ashamed—he hangs his head—he blows tobacco-smoke about in clouds, hoping to hide his red cheeks. And he talks of going on to St Petersburg, when we know this secret, and have got the money! What do you call this conduct, George?'

'Athelstan—there is no word for it. But you must have it back. You must, and shall. There can be no discussion about it. And there is not another man in the world, I believe, who would have done it.'

'Nonsense. I should only have lost it, if I

had kept it,' Athelstan replied after the Irish fashion.

'You hear, Athelstan. It is yours. There can be no discussion. That's what I like a man for. While we women are all talking and disputing, the man puts down his foot and says: "There can be no discussion." Then we all stop, and the right thing is done. It is yours, brother; and you shall have it, and you shall stay at home with us always and always.' She laid her hand upon his shoulder, and her arm round his neck, caressing him with hand and voice.

The man who had wandered alone for eight years was not accustomed to sisterly caresses. They moved him. The thing itself moved him.

'All this belongs to another chapter,' he said huskily. 'We will talk of it afterwards, when the business in hand is despatched.'

'Well, then—that is agreed. You are to have your money back: my mother is to take her suspicions back: Mr Dering is to have his certificates back and his dividends: Checkley is to take his lies back: Sir Samuel is to have his charges back: George and I are going to have our peace of mind back. And we are all going to live happy ever afterwards.'

'As for Wednesday now,' said George. 'It is not an unimportant day for us, you know.'

'Everything is ready. On Sunday morning my mother is always at home before Church. I will see her then, and acquaint her with the news that the wedding will take place as originally proposed, at her house. This will astonish her very much, and she will become angry and polite and sarcastic. Then I shall tell her to prepare not only for a wedding feast but also for a great, a very great surprise. And I shall also inform her that I shall be given away by my brother. And then—then—if I know my mother aright, she will become silent. I shall do that to-morrow morning.—In the evening, George, you will get your best-man, and I will get your sisters, my bridesmaids, and we will come here, or go to Richmond or somewhere—and have dinner and a cheerful evening.—Am I arranging things properly?'

'Quite properly. Pray go on.'

'Sunday afternoon I have promised to spend with my master—Edmund Gray. He is going to read me a new Paper he has just finished, in which he shows that Property can be destroyed by a painless process.—Athelstan, put all your money into your pocket and keep it there—in less than a twelvemonth, and with it all crime—all sweating, all injustice.—No, Athelstan, he is not mad. When he argues on this theme he is persuasive and eloquent. He convinces everybody. I shall hear him out, and then I shall try to make him write down all that has happened. If we can only get such a confession, it would be better than anything else. But it may be difficult. He does not like being questioned about himself. If I do succeed—I don't know quite what I ought to do next. He must be told. Some time or other he must have the truth. I thought of asking all the people mentioned to meet at his office on Monday morning at noon when Mr Dering is always himself. On Sunday I would not. He has to address his people on Sunday evening. Let him do so undisturbed. I will leave him in happiness that one night

longer. But you two—you will be anxious. Come on Sunday evening—between eight and nine—to the Hall of Science. Then you will hear him and see me. And I will let you know how I have prospered.'

'Sunday evening,' said George. 'Monday comes next, then Tuesday, and before Wednesday, my Elsie, the character of these two convicts has to be completely whitewashed, even to the satisfaction of Hilda herself. Are we not running it pretty close?'

'Unbeliever! Doubter! I tell you that you shall be married with all your friends round you, and that Athelstan shall give me away. And you shall go away on your holiday with a quiet heart and nothing to trouble you. What a foolish boy not to be able to trust his bride even for such a simple thing as getting a confession out of a madman!'

'Do you sport a crest, old man?' asked Athelstan.

'I believe there is some kind of a sort of a thing somewhere around. But crests are foolishness.'

'Not always. Take a new one, George—a real one. Stamp it on your spoons and forks and in your books and on your carriage. Let it be simply the words, "Dux Femina Facti."

(To be continued.)

THE ENFIELD SMALL-ARMS FACTORY.

SOME little time back we gave in the pages of this *Journal* a short account of Woolwich Arsenal (No. 380, April 11, 1891), where are manufactured ordnance of all sizes and classes, from the light field-gun of the Royal Horse Artillery to the huge monsters known as 'Woolwich Infants,' or by some such fanciful name. But, as every one knows, weapons of this character are quite in a minority as compared with those which are carried by the soldier himself, and form his personal weapons whether as an infantry or cavalry man. It is at Enfield, on the river Lea, some twelve miles down the Great Eastern Railway, that these weapons are manufactured, almost entirely, as required by our army.

Enfield Factory has not, like Woolwich Arsenal, an ancient history of its own. In the days of Henry VIII. and of Elizabeth, of the Duke of York and his faithful secretary, Samuel Pepys, Woolwich was famous for the production both of ships and of guns; but the small-arms factory on the borders of Essex dates only from the early part of this century. Its site seems to have been chosen regardless of any peculiar advantages for manufacturing purposes. It is simply a collection of workshops built in the flat meadows through which run the various branches, natural and artificial, of the lazy Lea; and the nearest town, about a mile and a half distant, is quiet and remote little Waltham, chiefly known for its Abbey Church, the burial-place of Harold, which rises in its midst.

The situation of the Enfield Factory is, however, advantageous in this way: the canals form a safe means of water transit for the gunpowder which is manufactured in the adjacent mills at Waltham, and which is required at Enfield for use in the proving of the barrels of firearms;

while the far-stretching marshes provide an apparently interminable range for carrying out the necessary experiments and trials with regard to the accuracy of the weapons manufactured.

Where one of the canals has been conducted into a square-shaped basin, the older and principal buildings of the manufactory have been located. They form a quadrangle of some extent; and here, too, are situated the offices and the quarters of the executive staff, which is composed partly of civilians and partly of military officers. Behind these, on the east side of the enclosure, and on the banks of one of the canals, are rows of workmen's cottages. Near the entrance gates are situated schools for the workmen's children; and at the other end of this street, as we may call it, is a church, which is served by the clergy of the parish of Enfield. On the west side extend north and south the flat meadows or marshes which form so convenient a spot for the testing and proving of the rifles.

As we have said, all sorts of personal weapons required for the arming of a soldier in the English army are made here, not only firearms, such as rifles and revolvers, but lances, swords, and bayonets, the last having now become a sort of short sword. There is also one class of weapons which occupies a sort of intermediate position between those carried by the soldier himself and those drawn by horses—that of machine guns, as they are called, which, though not carried by men on their shoulders or in their hands, are drawn about by them on small carriages. These machine guns are classed with personal arms, because they are usually employed in connection with infantry; and also because—which is a far more important reason—the ammunition required for them is similar to that used in rifles. In fact, they are in principle only a collection of rifles as used by the infantry, fastened together, or, as we shall see, a single rifle barrel with machinery attached which enables it to discharge with great rapidity.

There is one more general principle which we shall do well to bear in mind before we enter the factory. It is this, that of course the manufacture of small-arms is in as much a condition of uncertainty as that of larger warlike weapons in these days. What we see now may become obsolete in a very short time, and we shall be shown specimens of firearms which formed the universal weapons of the British army only a very few years ago, but are now as much out of date for practical purposes as cross-bows. Remembering this, let us go first when we enter to one of the offices, where we shall see arranged in a rack against the wall, amongst others, specimens of the old Enfield muzzle-loader, of the same weapon converted into a breech-loader, of the Martini-Henry rifle, and of the latest pattern of all, the magazine rifle. While, stored away in some out-of-the-way corner, it is just possible we might come across a specimen of the old smooth-bore or 'Brown Bess,' which formed the weapon of certain English linesmen so late as the beginning of the Crimean War.

The Enfield workshops are of course in appearance much like other workshops. There are the same processes of forging and casting, and the same machinery for hammering and turning and boring and drilling which we see elsewhere. Let

us rather confine our attention to those things which we shall not find in other places. We have come to see the articles which are turned out from here, in the process of their manufacture, rather than the machinery by which they are made.

A rifle, as every one knows, consists of three portions—the wooden stock, the barrel, and the lock. The stock is usually made of walnut wood, and is manufactured in what we should perhaps describe as a carpenter's shop. Formerly, the stock of a rifle was formed out of one long piece of timber; but now the complicated machinery of the breech and lock cannot be contained in a hollow in the wood, as was formerly the case, but has to be enclosed in a steel case, to which the wooden butt and barrel support are screwed. To the rifles of the newest pattern there hangs, just below the lock, the magazine, in which are carried five or, in some cases, ten cartridges, which spring up into place in turn, ready to be discharged. In short, the rifle has become, as regards its rapidity of action, something similar to a revolver pistol. We shall find that a lock has in its manufacture to pass through an almost infinite number of processes, each part having to be forged or beaten out till the whole can be fitted together.

Let us pass on to the barrel-making shop. Rifle barrels are made from a solid round bar of steel, which is at first considerably shorter and stouter than the finished barrel will be. This steel bar is heated red-hot, and is passed between several pairs of rollers, which convert it outwardly into the required form. It has, however, afterwards to be bored and then rifled—that is, furnished with the spiral grooves within, which give the bullet the necessary spin. Of course the barrel is by far the most important portion of a firearm, and the barrels of rifles are, at Enfield, tested and proved in the most ingenious and searching manner. The first proof takes place after the barrel has been bored, but before it is rifled. The barrels are loaded with cartridges of considerably greater weight both in powder and bullet than those which will be used in them when they are ready for service, and are enclosed in a sort of strong box which has one side open. They are then discharged through the open side into a heap of sand, and examined; but it is a rare event to find a barrel that has not been able to bear this test. The second proof, which takes place after the rifling, is of a similar character.

But these proofs are only to test the strength of a barrel; the test of its accuracy is a much more delicate operation. Of course the machinery by which it is bored and rifled works with the most admirable precision; but yet it is necessary to put this machine-work to trial. There are, amongst others, two highly ingenious methods for doing this. In the one case it is placed on a stand which is so constructed that on it the barrel can be made to revolve rapidly. The barrel is pointed towards a window, and in front of it is a fixed sight. The workman looks through it while it is revolving; and if the sight remains steady to his eye, that is a proof that the barrel may be said to be straight. But there is yet another method. The mechanism of this testing apparatus is rather difficult to describe, but is

something of this fashion. The barrel is made to revolve as before ; but this time there is inserted in it a spindle, on which is fixed a short arm with a point which touches very lightly the interior of the barrel. If there is any inequality, or if the barrel is not perfectly straight, this short arm is of course shaken, and when this is the case, the motion is further communicated to a long arm at the end of which is an indicator, which is looked at by the workman through a magnifying glass.

Barrel, stock, and lock being at last completed and tested, the rifle is put together ; but even then it is subjected to one more trial. This is carried out on the proof-ground in the marshes, and takes the form of an actual discharge of the weapon at a target. The rifle is screwed to a fixed and firm support, and then a certain number of rounds are fired at ranges of five hundred and one thousand yards respectively. In this test the hitting of the centre of the target, or 'bull's-eye,' is not the end in view, as it is in ordinary target practice. That sort of shooting depends of course on the steadiness with which the marksman holds the rifle. In this case, however, the fixed *rest* may be directed on any portion of the target, and the *grip* will always be the same. The only object of the test is to see whether the rifle throws the bullet at each round on or near the same spot. A marker at the butt examines the position of each shot, and the smaller the space on which they strike, the better the weapon.

We have not yet spoken of the machine guns. These weapons are, as part of the regular equipment of armies, quite modern, though the idea of binding together a quantity of barrels and then discharging them at once, or with great rapidity one after another, is not altogether novel. Sometimes, instead of a number of barrels, one only is required, and the cartridges are discharged from short barrels or chambers which are brought in turn into position with the longer one. This is the ordinary revolver system ; but modern machine guns are a great improvement on this method, and entirely dispense with the necessity of loading separate chambers. Machine guns have succeeded one another with extraordinary rapidity, and a gun seems only to be adopted in order to be superseded. Thus, we have had during the last few years a series of these weapons bearing the names of Gatling, Gardiner, Nordenfelt, and Maxim. We will not stop to examine all these specimens—most of which, as we have already said, may be considered in a way obsolete—but will only remark on the newest and latest. When the revolver system was given up, the idea was how to work with a single barrel and drop in cartridges as required. At first they were dropped in from a hopper or 'feeder,' which was fixed on the top ; but by the latest invention the cartridges are supplied from a long belt with pockets, which passes through the breech portion of the gun. Belt after belt can be inserted, as it is a very easy matter to slip the cartridges into the pockets, so that the discharge is continuous as long as there is ammunition. The machinery for picking the cartridges out of the belt, for inserting them in the breech, and for extracting the empty cases, is rather complicated, but almost self-working, the power employed being that of the recoil of the gun. Another highly important invention is that the barrel, to guard against overheating from

the continuous discharge, is enclosed in a cylinder which is filled with water.

As we walk about the factory we see, besides the workmen, here and there groups of men in military uniform. These are armourer sergeants, who attend classes at which they are taught the mysterious mechanism of the breech-loaders and machine guns. In former days, Tommy Atkins could be instructed how to keep his weapon in order, lock and all ; but now its complications are beyond the power of his understanding or of his fingers, perhaps of both, and he has to hand over his rifle to a more skilled superior when it is out of order. Truly, military matters, from the movement of the vast army corps of the present day down to the mechanism of the soldiers' weapons, have become a highly technical matter. Dugald Dalgetty, notwithstanding his lengthy practical training, would not have been *in it* now.

War has indeed become a science in this latter part of the nineteenth century such as it never was before ; not, of course, that men can be made to march faster nor horses to gallop more rapidly than they did in former days, but because the weapons which are used are such marvels of mechanical skill. And yet in how few years has this transformation been accomplished. What a short space separates us from the days of smooth bores and 'Brown Bess ;' and what a step it is, all at once, as it were, from firearms which were hardly an improvement on those of medieval days, to the breech-loaders and magazine rifles and machine guns which are turned out in such vast numbers from these Enfield workshops.

And so we leave the said workshops with their clang and their bang, and the throb of great machines, and the whirl of wheels, and the heat and the apparent drive and hurry, though of course there is really order in what seems to us to be confusion ; and we pass out across the flat low meadows, and along the banks of the scarcely moving stream. But as we make, it may be, for the old Abbey Church of Waltham, which rises before us, we feel there is one consolation which the sight of these wonderful weapons of war brings to us, and it is this : that modern science has made wars less lasting than they used to be ; that as soon as declaration of war has once been made, or an expedition decided on, the contest will be, though no doubt severe and terrible, yet short and decisive, and must perforce be followed by an interval of peace far longer than the period of fighting.

AN OLD MAID'S MARRIAGE.

BY GEORGE B. BURGIN.

MISS MATTIE was in a dilemma. A chill gleam of April sunshine shot across the table and lit dancingly on Miss Mattie's face. Miss Mattie was not averse to sunshine ordinarily, but this intrusive and irresponsible beam annoyed her ; besides, it made the flame of the fire look sickly, and disturbed maiden meditations. She put on her spectacles, carefully adjusted her cap, and prepared for the worst. Then she rang the bell for Prudence, her handmaiden, who appeared in Quaker gray and a snowy cap. Little rebellious curls danced out from beneath the cap in a friv-

ous fashion which nothing could restrain. Even now as she came in she made an attempt to reduce them to order, but in vain.

'Prudence,' said Miss Mattie, 'what did the Doctor's boy say?'

'That worldly youth, Mistress, attempted to pass the time in vain discourse concerning certain maidens who attire themselves in blue raiment and smite a heathen instrument called the tambourine!—'

'Yes, yes, Prudence,' interrupted Miss Mattie, 'I daresay. But what did he say about the letter?'

'He said, Mistress, that he was to take back an answer; and I have entreated him to much profitable conversation until the answer be written.'

Miss Mattie looked perplexedly at the grave, serene-eyed, little Quaker maid. 'How old are you, child?' she asked.

'Twenty, Mistress,' said Prudence.

Miss Mattie gazed at the unopened letter on the table, and then at Prudence. 'Prudence, you are young,' she said, 'but wiser than your years. Have you—have you ever had a sweetheart?'

Prudence looked a little unprepared for this remark. But she was conscientious. 'Truly,' she said, 'there is one stalwart youth, a carpenter, who has flattered me many times when going to Meeting, but to whom I have not been drawn.'

'Oh, you—you weren't drawn to him?' asked Miss Mattie.

'Nay, Mistress; whereat he is much provoked, and threateneth to—'

'To what?' asked Miss Mattie.

'To fare forth to foreign lands and forget me,' placidly answered the little maid.

Miss Mattie still struggled with a certain shameful consciousness that she had wavered. What a tower of strength Prudence was! 'Did you—did you—did he ever kiss you?' she asked in a whisper.

Prudence opened her blue eyes widely. 'Surely, Mistress, it is the manner of young men to indulge in such unseemliness unless discouraged.'

'And—and did—you—did you discourage him?' asked Miss Mattie.

A faint colour stole over the pretty little maid's face. She looked distressfully at the carpet. 'The youth was strong, and I but slight,' she answered in confusion; 'and he was about to depart and—and—'

'What did he do?' asked Miss Mattie eagerly, still holding the letter in her hand.

'He saluted me, Mistress,' answered Prudence. A faint smile played over her lips at the recollection.

'Sit down, Prudence,' said Miss Mattie. 'I want to ask your advice, child. You know more about men than I do.'

Prudence sat down. Miss Mattie regarded her as a daughter, although Miss Mattie herself was only forty-five. But people in Little Bingleton rather prided themselves on looking old. It was thought to savour of flightiness if folks adopted modern fashions or travelled often to town. Miss Mattie was the only daughter of the late Dr Sewell. Ever since her father's death, which had happened about ten years ago, she had lived in

her own pretty little cottage on the outskirts of the town. People who remembered her fifteen years back said that Miss Mattie was then very handsome. She was still a sweet-faced woman, with rich auburn hair, and placid blue eyes. There had been whispers of a girlish romance a long time ago; but by-and-by people looked upon her as a confirmed old maid. The years passed, and still Miss Mattie lived her quiet uneventful days, until Dr Slurke, the one practitioner in the place, suddenly discovered that Miss Mattie was wasting her life. 'You've a mission to fulfil,' he had said. 'What is it?' placidly demanded Miss Mattie. 'I will go home and write it to you,' retorted the Doctor, attacked by a sudden fit of shyness. His manner had occasioned Miss Mattie some misgivings, but she had concealed them under her usual placid exterior until the arrival of the fatal letter.

The latter lay upon the table. Miss Mattie dared not open it. It seemed as if the occasion demanded a solemn and formal ceremony of some sort—a ceremony with witnesses. 'Open it, Prudence,' she said suddenly, turning to the little maid.

Even Prudence could not conceal something which approached to worldly curiosity. She took the letter in her hand and opened it with her usual deliberation. 'The man has a concern to marry thee, Mistress,' she said, after a steady perusal of the letter.

No woman likes to have a proposal of marriage put before her in so baldly prosaic a manner as in this instance. Miss Mattie felt that the occasion was not being treated with sufficient solemnity. 'Read it aloud please, Prudence,' she said; and Prudence read it:

DEAR MADAM—I never proposed to any one before—haven't had either the time or the inclination—and I have vainly consulted all the literature on the subject. Most of it seems to me to be rubbish. You are a sweet, amiable woman, of rather a melancholy disposition; I am bustling, savage, irritable, loud, and overbearing. Don't you think that we each have what the other lacks? I'm tired of living alone, so must you be also. Couldn't we join forces and travel together? You must be very solitary, and it is always so comforting to have a man in the house in case of burglars or fire or anything of that sort. Will you marry me? If so, kindly return a note in the affirmative by bearer, and I'll come up this evening to talk it over. If my letter is lacking in delicacy, remember that doctors are accustomed to come straight to the point. You want rousing; so do I. Which shall it be? Yes or no? I shall be walking impatiently up and down my garden—an exceedingly rash thing to do in this east wind—until I receive your reply.—Yours very faithfully,

SILAS SLURKE.

'Is that all?' demanded Miss Mattie, who had faint hopes that the missive would be couched in all the long-winded eloquence of Miss Austin's héroïnes.

Even Prudence seemed to have found it disappointing. She inwardly contrasted it with certain vain but impassioned utterances of the young carpenter, and then rebuked herself for instituting worldly comparisons.

'Is there nothing more in the letter, Prudence? Nothing about love?'

'The letter lacketh worldliness of that kind,' answered Prudence, seriously scanning the page.

Miss Mattie had not lost all sentiment. She recalled that episode of her vanished youth when Reuben Rountree had declared that he worshipped her. Reuben was only a farmer's son—a struggling farmer—and Miss Mattie's exalted position had been declared a fatal obstacle to Reuben's pretensions. Whereupon, Reuben had uttered wicked words, shaken his fist at Mattie's white-haired old father, and departed to lands unknown in search of fortune. He had taken a lock of Miss Mattie's fair hair with him, and she still cherished in secret a little black daguerreotype of the departed swain. All this had happened a quarter of a century ago. At first, the faith of love had kept Miss Mattie's heart warm. But hearts grow cold and faith wavers and dies away when the years pass and absent lovers make no sign.

Miss Mattie drifted placidly adown the stream of Time, distributing little gifts to her neighbours on the banks, and winning the love of all. But she found life rather dull. Her old school-fellows had large families, who called Miss Matilda 'Aunt Mattie,' and confided all their troubles to her sympathetic ears. Miss Mattie also found, to her very great surprise, that men rather disturbed her. She liked her little nap after dinner, her game of backgammon with Prudence in the evening, her regular quiet life. If she had married Reuben, all these things would have become impossible.

Miss Mattie did not like to be hurried. And yet—and yet. As she sat there holding Dr Slurke's letter in her hand, her youth came back. How the poor boy had loved her! She recalled his foolish speeches, his fondness for her yellow locks and blue eyes, and all the thousand-and-one little tricks and jests with which he had beguiled her into loving him. Dr Slurke's letter had unsettled her. Though she felt she could not marry a man who never wiped his boots on the mat, and believed that a congested liver was answerable for all the sorrow in the world—yet there might be hidden depths of love within him. He was a doctor, too. That was another recommendation.

Prudence still waited, the letter in her hand.

Miss Mattie temporised. 'I—I will ask him to tea, Prudence,' she said, as she sat down to her desk and wrote in an elegant Italian hand that she must have further time in which to consider Dr Slurke's flattering proposal. 'And Prudence,' she said, as she sealed the letter—Miss Mattie always used a seal—'see that your pikelets are plentiful and of the best. Nothing comforts a man so much as a good tea.'

Miss Mattie was a little bit ruffled by the events of the day. She went up-stairs and looked long and lovingly at a certain little tin portrait. Then she put on her best lavender silk dress, removed her cap, and went down-stairs to her cosy sitting-room.

A man's step scrunched the gravel outside, and the next moment an unknown voice demanded if Miss Matilda Sewell lived there.

Miss Mattie thrust the daguerreotype into her bosom and went out. 'What is it, Prudence?' she asked.

'A wayfarer from over the seas who would have speech with thee, Mistress,' said Prudence quietly, as she went back to her pikelets.

Miss Mattie felt an odd sensation at her heart. It fluttered and leapt. What if this burly stranger brought her news from the unforgotten Reuben!

The stranger held a letter in his hand. 'I've just come down on the cars with a letter from an old friend,' he said.

'On the what?' asked Miss Mattie, in bewilderment.

'On the cars. Oh, I forgot. You call them trains. Can I come in?'

'With pleasure,' said Miss Mattie, in a fluttered, odd little tone. 'May I offer you a dish of tea?'

The stranger seemed puzzled. 'We generally drink it in mugs,' he said.

He took off his hat and coat and carefully hung them on a peg in the hall. The passage seemed to shrink when he walked along it, and his head hit against the low little portal as he followed Miss Mattie into her small sitting-room, full of delicate china, and gay with samplers and quaint old mirrors on the walls.

The stranger sat down in an armchair by the fire. He seemed to swell over the sides of it. The cat jumped on to his colossal knee and went to sleep there.

Miss Mattie sat facing the window, and feeling reassured. She trusted that cat's instinct almost as much as she did the wisdom of Prudence. And the cat did not know young carpenters.

As the stranger glanced round the room, the ancient figures on the samplers caught his eye. He studied the impossible peacocks spreading their tails under equally impossible trees, and his eyes twinkled. 'My! Ain't they real pretty!' he said. Then he looked at another sampler. 'I like that picture of Noah and his sons sitting on top of the Ark,' he observed genially.

Miss Mattie felt distressed. She did not like to interrupt his flow of art criticism by admitting that the Ark was meant for the roof of a house, and Noah and his sons were only four ravens perched on the ridge.

'Excuse me,' said the stranger, handing her a letter. 'Won't you read this first, and then we'll talk.'

Hospitality was a sacred rite with Miss Mattie. 'I trust that you will partake of my poor hospitality first, M-Mr—?' she said, with a stately bend of her head.

'Alpheus P. Winterbottom. I'd be sorry to go away without doing so,' answered the stranger heartily, as Prudence appeared with the pikelets.

'Prudence,' said Miss Mattie solemnly, 'make some more.'

'You're right, Ma'am,' said the stranger, surveying the little dish. 'I was just thinking I could eat the whole lot of those cunning little cakes.'

And Miss Mattie actually laughed. Her tea-parties were usually very solemn and stately affairs. Mrs Pennifather, the Rector's wife, always came in a copper-coloured silk. Miss Twinkleton, too, invariably donned her best old yellow lace ruffles for the occasion. The stranger, however, wore garments of a transatlantic cut, and had a pointed beard. He was

a fine handsome man of about forty-five. As Miss Mattie handed him a fragile cup, the last of the pikelets had disappeared.

'My! Miss Sewell,' he said, 'I'm quite forgetting the little men up there on the walls. There won't be a crumb left for 'em at this rate.'

Miss Mattie laughed again. Another step sounded on the gravel path outside.

'It's Dr Slurke,' she said, uncomfortably. 'I—I had quite forgotten him.'

Dr Slurke opened the door, and recoiled in angry amazement. There was Miss Mattie—*his* Matilda, as he was wont to call her in dreams—when he did dream, which was but seldom—chatting genially away with some foreign ruffian whom he had never before heard of or known to exist. It was indecorous; it was vulgar; it was unfeeling; it was aggravating; it was unprofessional; and the kind of thing which he (Dr Slurke) was not going to put up with from any lady however nice she might be under ordinary circumstances. So he pulled his stubby beard and glared at the stranger. But, unfortunately for the Doctor, Mr Alpheus P. Winterbottom was not overwhelmed.

Miss Mattie half rose from her chair. 'Good-evening, Dr Slurke. Won't you come in?' she inquired, with the sugar tongs poised in her white hand.

This was another insult. She was pouring out her best tea and giving it to the man in the chair. Dr Slurke did a very foolish thing—a thing he had often done before, but never without experiencing disastrous results. He lost his temper. He drew himself up to his full height—five feet three—and scowled on the Pirate King in the armchair—this ruffian who stole people's hearts by nursing their objectionable old Persian cats.

'Won't you come in?' tremulously repeated Miss Mattie.

Dr Slurke bowed sarcastically. 'I thank you, no, Madam,' he said. 'I only came in to inform you that I had caught a cold in my garden whilst awaiting your pleasure.'

The other man looked quietly up. 'I guess, you ought to be proud of it,' he said, in his objectionable American way.

Dr Slurke bowed to him with withering irony. 'I—eh—was not aware that I was asking a conundrum,' he said. 'May I inquire who I have the pleasure of addressing?'

The stranger smiled. 'My name's Winterbottom—Alpheus P. Winterbottom.'

Miss Mattie let fall the sugar from the tongs. 'Oh, Dr Slurke,' she said, with tears in her voice, 'I am so sorry. You see it was rather a difficult question to answer, and—'

'I will thank you to be good enough not to discuss it before this gentleman,' the Doctor ejaculated at a white-heat.

'But I—I really—' And poor Miss Mattie felt inclined to cry.

Mr Winterbottom was moved by Miss Mattie's distress. 'Shall I make him shut the door from the outside?' he asked, quietly caressing the cat. 'I think, Madam, you'd feel more comfortable if this turkey-cock sort of person had gone home to roost.'

'I was not speaking to you, sir,' said the

Doctor. 'My remarks were meant for this lady.'

'I could just drop him into a nice soft flower-bed, if you'd only say the word, Madam,' quietly continued Mr Winterbottom.

'Madam, I take my leave,' said the angry Doctor.—'As for you, Mr Winterbeans, you shall hear from me.'

'Not professionally, I hope,' said the imperturbable stranger. 'Don't distress this lady any more, or I'll really have to come and reason with you.'

The Doctor withdrew, speechless with rage. Poor Miss Mattie began to cry softly into the teapot.

The stranger put the cat down, gently approached the table. 'Madam,' he said, 'that extremely ill-tempered person will be better to-morrow. If he ain't, I guess I'll have to reason with him—near a pond.'

'Oh, please don't,' said Miss Mattie, feeling comforted by the stranger's vast bulk. 'I—I kept him waiting for an answer to—to an extremely delicate matter this evening, and—and he's cross with me.'

The stranger led Miss Mattie to the armchair. 'Now, you sit there, Madam,' he said in his gentle, kindly way. 'I'll brew this tea for you. You just assimilate those cunning little cakes of yours, and you'll feel better. One lump of sugar?—Isn't it?'

'Yes,' said Miss Mattie, feeling that support from conscious strength which delights most women.

'And the cream?' said the stranger, holding up the dainty little cream ewer admiringly. 'My! Ain't that little pitcher pretty! And the fire! Beats our stoves hollow.' He handled the dainty tea equipage with jealous care, and waited on Miss Mattie so nicely that all her fears vanished.

'A gentle lady like you didn't ought to be bothered,' the stranger said reflectively, when Prudence had cleared away the things—'didn't ought to be bothered by a grasshopper like that. I daresay he means well, but he don't colluscate worth a cent. That's what's the matter with him. Now just tell me if you feel downright chipper again, and if so, we'll go into this business, or, if you prefer it, I'll come again to-morrow.'

'I thank you, Mr Winterbottom,' said Miss Mattie, in her simple friendly way. 'It—it was foolish of me to—to be so frightened. The Doctor has been very kind to me.'

'Then I'll let him off the pond,' said Mr Winterbottom, as if making a concession to sentiment. 'You're like one of those pretty wind-flowers we have in our country—you want sheltering from all the storms that blow.'

Miss Mattie smiled a pleased little smile. She had never been compared to a wind-flower before.

Mr Winterbottom took up the letter with his customary deliberation. 'Now, Madam,' he said, 'I'll read it to you, and when I'm bumping over a *cahot*, you tell me to pull up, and I'll drive quietly!'

Miss Mattie did not understand what a *cahot* was. The stranger explained that it was a hole in the road in winter, and that a sleigh had to

glide gently over and not take it flying, for fear of bumping the bottom out.

"Is—is the letter from Mr Rountree?" asked Miss Mattie, with quivering lips.

The stranger looked at her admiringly. "Now, Madam," he said, "I never did see your like for coming straight to the point. You've fine instincts. That's what the widower said when he was telling me about it."

"The—the—Did I understand you to say widower? To—to allude to Mr Rountree?" inquired Miss Mattie. She felt crushed. Reuben had not been true to her; he had forgotten his youthful love; all these years she had allowed her heart to remain in the keeping of a man who did not want it.

"I'd better read his letter," said Mr Winterbottom. "His wife wished it, you know."

"I—I don't know," said Miss Mattie, trembling—"I don't know. But, oh, Mr Winterbottom, you have been so kind to me, that I would rather hear it in your own words, please."

Mr Winterbottom looked gratified. "So you shall, Madam," he said—"so you shall. You see, Reuben settled down in Ontario five-and-twenty years ago."

"Yes," said Miss Mattie.

"And then, when he was doing pretty well, he married old Deacon Tucker's oldest."

Miss Mattie was but human. "Was—was Miss Tucker comely?" she asked.

"Sort of apple-cheeked," said Mr Winterbottom.

"The girls are more like Reube."

"The—the what?" gasped Miss Mattie.

"The girls."

"Are—are there many?"

Mr Winterbottom reflected. "Well, there's Samanthy, and Delia, and Lelota, and Theresa, and the Twins."

Every fresh name made the matter worse. The stranger saw it. "I can't remember the names of the others," he said comfortingly; "but there aren't many—seven or eight, maybe."

"Is he happy?" inquired Miss Mattie, still clinging to her romance, as only a woman can. She would not be harsh or unjust to Reuben. Whilst she stayed at home and dreamed her life away, he had gone into that vast new country and won a living from the soil. He had worked out the grief from his heart, and—and forgotten her. She might have known that his strong loyal nature could not fail to find an appreciative helpmate. This Canadian girl who had loved him had not stayed to think of social position; she had grasped the substance instead of the shadow. Poor Miss Mattie's tears flowed freely. Perhaps Reuben's grief when his wife had been called away had prompted him to think of her, Miss Mattie.

"Wh—what is his message to me?" she inquired.

Mr Winterbottom came a little nearer to Miss Mattie. "Well, you see," he said gently, "she was kind of jealous of you, Madam. Reube told her you'd always be first in his heart, and so, when she was called away, she asked him to send for you to—to look after him."

"And—and what did he say?" asked Miss Mattie.

"Well, you see, Reube hadn't the heart to tear you from your old surroundings, even if you'd been willing to come. So he sent me. "Tell

her," he said—"tell her all my life I've turned to her in sorrow and joy alike; all my life she's been my guiding star. In the woods I've seen her walking before me, clearing the way, and everywhere she stepped the corn grew greenly. Tell her," he said, "in all that coarse, rude, rough life, with its struggles and trials and pains and successes, she's never left my side for one moment. She's been the angel of my life, the pure sweet English girl, who I know has been true to me all these years. The"—

"Stop!" said Miss Mattie, quivering with excitement, as the tears streamed down her cheeks. "Please stop, Mr Winterbottom—stop. To say this to me means that he was disloyal to her. Don't let me think the man I loved all my life could have been false to us both. Please leave me that. Don't take that away from me. It—it has been the only thing which has sustained me in my loneliness. I have lived a quiet, faithful, uneventful life, keeping and guarding the love which God put into our hearts. Don't tell me that now, after all these years, he could send me such a message as that. It must be some dreadful mistake—in her excitement she laid her hand upon Mr Winterbottom's arm—some dreadful mistake. It is natural that he should turn to me now; but he must have loved her while she lived. It is only his sorrow which makes him seem to forget. Tell him I will be a mother to his children—go to them—cherish them; but unsay those words which have destroyed my ideal, the ideal which I have taken to my heart all these years. The sacredness of love must not be broken like this. Tell me!—tell me! Oh, I would rather be the humblest beggar that ever craved charity, than believe the man I loved could win some other woman's heart and profess to have loved me too."

Mr Winterbottom gently took her hand. "My dear Madam," he said—"my dear Madam, I know he never loved any woman but you."

Miss Mattie buried her face in her hands. Disillusioned by both the men who had loved her—disillusioned in one evening! Well, she had had five-and-twenty years of trustful, loving faith and hope, and now she must hide her grief and try to live it down. She wanted to get away to her own room—to be alone—to think over this shock. And all the time she grieved, the stranger's gentle pressure grew firmer still. It comforted her. She experienced a strange thrill—a thrill which she had never expected to feel again. And then she strove to withdraw her hand, and accused herself of immodesty.

"Mattie!" the stranger's voice sounded in her ears—"Mattie, don't you know me? I am Reuben! I have never married—never loved any one but you; and I have come home to stay, to comfort your life, to give you back the years you have spent without me, to guard and love you with the firm strong love of manhood, and to atone to you for all the sorrow of the past. Look up, dear, look up. Say to me!"

She looked up through a mist of happy tears as he caught her to his heart. "What can I say to you?" she whispered. "Oh, Reuben, Reuben, I have waited so long! I have doubted the goodness of God. And now He brings you back to me—He brings you back."

Reuben put his strong arm round her. "Dear,

forgive me. I wanted to know if you still cared for me. I could not come until I had made money enough to give you a higher position than that of a farmer's wife. And now let us be happy.'

She put her hand in his. 'Ah, Reuben,' she said, 'how often our pride places before it everything else and robs us of the years. I am not the girl you knew and loved—I'm only an old maid.'

But he gazed into her truthful, loving eyes, blue with the blue of heaven, and then he kissed her.

'They will call it an old maid's marriage,' she whispered with a smile upon her lips.

THE MONTH: SCIENCE AND ARTS.

A VERY wonderful engineering work, which has occupied eleven years in its execution, has just been brought to a successful issue in the establishment of a new water-supply for the city of Liverpool. That this is a very wonderful work must be conceded when it is remembered that the water is drawn from a source more than seventy miles away from the city, and that the enterprise has involved the creation of a lake nearly five miles long which drains twenty-three thousand acres of ground. The new lake is situated in the Vyrnwy Valley, which, ten years ago, was a bare region without any particular interest attached to it. No doubt, a lake existed here long ago in the Glacial period, but this fact has been forgotten, except by geologists; and the engineers have now reinstated the Vyrnwy Lake by means of an immense dam of solid masonry. Manchester has for a long time drawn her water-supply from a distant lake, and Birmingham is taking similar steps to supply her need of the first necessary of life. Presently it will be the turn of London itself to provide for its rapidly increasing multitudes by a similar scheme.

The Photographic Convention of the United Kingdom is a useful society, which, like its elder brother, the British Association, meets annually at some large centre for the purpose of reading and listening to papers on different subjects, and refreshing its members by excursions into the surrounding country. This year they met at Edinburgh. Next year, Plymouth is chosen as the scene of their operations; and the following year they will probably meet at Dublin. The Photographic Convention is now in its seventh year of existence, and the rapid increase in its membership proves that its labours and cause are appreciated.

At Barwick, near Ware, stand the premises of the Smokeless Powder Company, the only works of the kind in the kingdom. These works cover no fewer than one hundred and twenty-six acres of ground; and a large company assembled there recently to watch the entire process of manufacture from the raw material to the finished explosive. This new compound differs from the

old black gunpowder not only in its freedom from smoke when ignited, but also in the circumstance that it is unaffected by damp or extremes of temperature. After the works had been inspected, the quality of the new powder was tried with various weapons by expert marksmen, and excellent practice was made. The exhibition concluded with the firing of five hundred rounds from a Maxim gun, when it was shown that far less smoke was produced than with ten shots fired with the old-fashioned gunpowder.

A curious relic of the early days of telegraphy will be shown at the Chicago Exposition by one of the American railway companies—namely, the original apparatus which was employed for laying the first underground telegraph wire, that of Morse. This wire was originally laid from Washington to Baltimore, and the apparatus for laying it in the ground consists of a heavy plough with a reel behind carrying the wire; thus the furrow was made by the plough, the wire laid therein, and covered up again as the plough proceeded on its way. It was soon found that the leakage to earth was so great that some other system must be adopted, and so overhead wires on the familiar telegraph posts became general. This relic of bygone times is to be exhibited in very complete form with wax figures representing Professor Morse and his workmen, while sixteen stuffed oxen will represent the original team which drew the machine over the ground.

Could the pioneers of telegraphy have had a vision of the network of wires both above and below ground which are now so common in our large commercial centres, they would have been incredulous; nor would they have ever guessed that nefarious industry would arise in the tapping of telegraph wires in order that knaves might listen to messages not intended for them from which they might derive profit. This is now the case in New York, where a gang of wire-tappers, consisting of about twenty-five dishonest telegraph operators, and as many more inferior workmen, make a regular business of tapping the wires over which the returns of horse-races are sent, so that by the news thus obtained they may be able to defraud the bookmakers. They carry on their operations in the most impudent manner, often meddling with the wires under the pretext of being workmen who have been commissioned to make repairs, and it is said it is very difficult to stop their depredations.

Of late years we have heard a good deal of drugs, leaves of plants, &c., which have the property of conferring upon mankind power to withstand fatigue. The latest introduction of this kind is described by a correspondent of the *Globe* newspaper as a pastile which is said to take the place of both food and drink. It was lately tested on a company of Roumanian soldiers who completed a march of seventy-five miles in twenty-seven hours, and whose sole food during that time was in the form of these pastiles. First, each man had a pastile every half-hour, and later on, three every hour; at the same time the pastiles dissolved in a small quantity of

water were supplied to the horses which accompanied the troop. At the conclusion of the march, both men and officers declared that they felt no fatigue whatever, and spoke highly of the sustaining powers of the new preparation. The pastilles are said to contain a large quantity of caffeine.

A device for preventing caterpillars from climbing trees has lately been described. It consists of alternate wires of copper, which are wound round the tree trunk at a distance of about half an inch from one another. These wires are in connection with a source of electricity, and when the circuit is completed by the caterpillar bridging the metals with its body, it receives a shock which either destroys it or at any rate makes it let go its hold. It may be mentioned that a plan has for a long time been common of protecting shrubs and flowers from the incursion of slugs by placing rings of zinc and copper round the root. The two metals when touched by the moist body of the slug develop sufficient electricity to cause the creature to turn back.

The Society for the Protection of Ancient Buildings has for many years been carrying on a very good work. At their last meeting, it was stated that more than one old building in London had recently, by the intervention of the Society, been saved from destruction or restoration, terms which are too often synonymous. At the same meeting there were expressions of regret that the Society had failed to prevent the restoration of St Helen's Church, Bishopsgate, one of the few old buildings in London which escaped the Great Fire of 1666. It may be mentioned here that one building in that neighbourhood—the house of Sir Paul Pindar—the demolition of which was necessary in consequence of street improvement, has been re-erected, so far as its handsome carved front is concerned, in the Architectural Court of the South Kensington Museum.

During a recent tour in Algeria the French Minister of Public Instruction and Fine Arts visited the Arab city of Timgad, which is described as an Algerian Pompeii. Certainly this old Arab city, which is now but a heap of ruins, has seen almost as many vicissitudes as the Italian Pompeii. It was built in the first century of our era, and is situated in the province of Constantine. It was overrun by the Moors in the sixth century, and ultimately destroyed by successive earthquakes. Like Pompeii, it was a place of fashionable resort, and its ruins show remains of handsome pavements, beautiful statues, a theatre, fountains, and baths. One immense temple is dedicated to Jupiter, and this is now being excavated and thoroughly examined. The province of Constantine is very rich in Roman remains; and it is hoped that the visit of the Minister of Fine Arts will result in funds being found for the necessary excavations being carried out, so that we may learn more of this interesting buried city.

It has always been a common idea that cheese is a valuable aid to digestion, hence the invariable custom of concluding the principal meal of the day with a modicum of that toothsome compound. From the recent experiments of a German chemist, it would seem that cheese does not possess the virtues which have been attributed to it in this respect. This chemist placed

various kinds of cheese in an artificial digestive fluid, among the constituents of which was a large proportion of fresh gastric juice. The various kinds of cheese took from four to ten hours before they were dissolved, and as an ordinary meal is digested in from four to five hours, it would appear that cheese must hinder rather than aid the process.

The careless nursemaid who leaves a perambulator upon a sloping footpath unattended, perhaps on a windy day, is responsible for many a sad accident. An attempt to grapple with such disasters is seen in a Safety Perambulator which has just been introduced by a firm in London. In this little vehicle there is a brake which fixes the wheels, except when the handle of the perambulator is grasped by the person in charge, when they are at once released. Close to the handle is a lever bar which is grasped by the attendant with the handle, the lower end of the lever being connected with a strap which passes round a drum attached to the axle of the hind-wheels. By the coiling of this strap round the drum the wheels are effectually locked, and the vehicle cannot be moved.

One of the most beautiful improvements which the Metropolis has experienced of recent years is the creation of the handsome Victoria Embankment, which borders the north side of the Thames. Persons of middle age can remember how on this same site was presented at low tide a vast expanse of black mud. Never does this Embankment look so beautiful as at night, when its curved form between the bridges of Westminster and Blackfriars presents a semicircle of light. It has now been decided that this important thoroughfare shall be lighted by electricity, not for the first time, for about ten years ago experimental electric lights were erected here, and were used with beautiful effect for many months. The system then employed involved so much expense that it had to be abandoned; but now the science of electric lighting is so much better understood that the new installation is sure to be of a more permanent character.

In the last annual Report from the British Vice-consul at La Rochelle, a vivid description is given of the ravages caused by the white ants, which infest that town. It would seem that these destructive insects were introduced about the end of the last century; and the plague might have been stayed if the precaution had been taken of at once burning all timber which had become affected; but this was not done, and the pest is considered to be almost incurable. In many cases, the beams and other woodwork of the houses are so eaten away, leaving a mere shell outside, that they have to be removed and replaced by iron. By this means alone can the houses in many cases be ensured from utter collapse.

A method of preserving wood from the attacks of insect pests and other destructive influences was some years ago introduced by Colonel Haskin of the United States, where it is in extensive use with very satisfactory results. From time immemorial it has been the custom to preserve wooden posts which have to be fixed in the ground by charring them; and although this process is an effectual preservative, it has the drawback of

burning away a certain portion of the wood, and therefore robbing it of some of its strength. Colonel Haskin conceived the idea of doing the work more efficiently by submitting the entire body of the wood to the action of superheated air in closed retorts. Wood treated in this way is said to be 'vulcanised,' and the action of the heat not only preserves it against decay, but confers a strength and hardness upon it which it did not before possess. On the New York elevated railways, vulcanised yellow pine timbers which have been in use for the past six years do not show any sign of deterioration, while untreated wood exposed to the same conditions of weather is in a state of decay. A company is being formed to work this process, which is of an inexpensive character, in this country.

Although we hear so much of illumination by gas and its modern rival electricity, there is no doubt that the majority of householders throughout the world use mineral oil as their chief source of artificial light. In this country alone there are, it is said, more than ten million lamps burning mineral oil in nightly use, and though perhaps some of us hardly realised that the employment of these lamps was so general, we are constantly reminded by the newspaper reports of terrible accidents that the use of such lamps is not only common, but dangerous. At a recent inquest upon a victim of one of these accidents, it was stated that three hundred deaths every year are caused in this country alone by similar disasters; and in one year Captain Shaw, the former Superintendent of the London Fire Brigade, reported one hundred and fifty-six fires caused by the upsetting of lamps in the Metropolis. Many devices have been invented to render these lamps safe, so that should they be accidentally upset, the flame is automatically extinguished; and such devices have from time to time been noticed in these columns; but unfortunately they are not adopted, and probably will remain neglected until legislation is brought to bear upon the subject.

It is a matter of common knowledge that india-rubber goods even of the highest quality are perishable. Although not subject to any great wear and tear, the time comes when the rubber loses its elasticity and becomes soft and rotten. Hitherto, such perished rubber has represented a waste material for which no use could be found; but by a process recently invented, the perished rubber can be made, it is said, once more serviceable. By incorporating the waste rubber with certain hydro-carbons and with a proportion of Trinidad asphalt, by adding to the mixture certain vegetable oils, and submitting the product to heat, there is produced a substance to which the name 'Blandyite' has been given. It can be made hard and dense, or soft and pliable by modifying certain parts of the process; and it seems to be applicable to most of the various purposes for which pure rubber is used. Compared with rubber, vulcanite, or leather, blandyite is a wonderfully cheap material, due, of course, to the fact that its chief constituent has hitherto been of no value. The offices of the syndicate by which the manufacture is now being carried on are at 78 Gracechurch Street, London.

During the dark and foggy days which visit the Metropolis and other large towns in the

winter-time, thousands of extra hands are employed upon our railways, whose duty it is to place detonating signals upon the rails, which supply the place of the ordinary semaphores, which are invisible through the murky atmosphere. This means great expense to the railway companies both in men and material, for each of these fog-signals costs three-halfpence. An improved method of signalling to the drivers of locomotives in thick weather has recently been brought forward. On the locomotive itself is fixed an electric bell, to which is attached a contact device, which operates by means of a movable bar which is associated with each signal-box. When the engine passes such a signal-box, contact is made, and the bell rings; and by the number of beats upon the gong, the engine-driver knows whether to proceed or whether to stop. The apparatus does not interfere with any existing signalling arrangements, and would be quite automatic in action provided that the signalman attended to his levers just as if the weather were clear.

A lucifer-match factory is about to be established in Calcutta. The promoters of the enterprise are natives who, as soon as they had conceived the idea, collected samples of wood from different parts of the country and submitted them to European experts. Some of these woods have been found very suitable for the purpose of match-making, and it is said that they can be purchased at a very cheap rate. The chemicals required can also, it is said, be made in India; and with the cheap labour there obtainable, the enterprise has every prospect of success.

A few years ago the Phonograph of Edison and the wonderful things that might be expected of it were common topics of conversation, and many have expressed surprise that after so much promise, the performance is so small. 'Why,' they ask, 'is not the phonograph to be obtained commercially?' It was long ago reported that its inventor had perfected it, and it has been exhibited all over the country, in order that the public might be made acquainted with the really marvellous results of which it is capable; but still it cannot be purchased, and no one seems to know the reason why. In France, if a patented article is not produced as a marketable thing within a period measured by so many months, the inventor cannot claim further protection for it; and this being the case, it is possible that some French speculator may flood the world with phonographs which do not bear the name of Edison.

Hitherto it has been thought most dangerous, if not impossible, to discharge shells containing high explosives from ordinary guns, the danger lying in the possible premature explosion of the shell, through the shock communicated to it by the gun. This difficulty seems to have been surmounted by Dr Justin, who has recently conducted a series of experiments with shells charged with explosive gelatine. Dr Justin states that the danger of igniting explosives contained in shells is caused more by the friction induced by the rotary motion of the projectile, than from the shock induced by starting it on its flight, and this friction he reduces by placing the explosive charge in an inner chamber of wood. By discharging heavy shells of this character

against a target of solid rock, the enormous destruction possible with them was made evident. The shells used were fitted with a delayed-action fuse, so that they did not explode until they were buried in the cliff against which they were aimed.

It is with a feeling akin to regret that we learn that the ancient city of Rome is to be modernised by being illuminated by electricity; but such is indeed the case, and the works to supply it with the necessary current were recently inaugurated. These works are at Tivoli, twenty-two miles away; and the motive-power for driving the necessary dynamo-machines is found in a volume of water having a fall of about one hundred and sixty-four feet. The electricity thus generated will be carried from Tivoli to Rome by four copper overhead conductors, and the loss of power in transmission is calculated to amount to twenty per cent.

GAMBIER.

THERE are perhaps few substances more widely if indirectly used and at the same time less known to those outside the immediate industry concerned, than Gambier. The very name is unfamiliar to the general public; whilst any knowledge of the origin and mode of preparation of gambier is uncommon. Gambier is very extensively employed in the dyeing and tanning industries; and a large number of materials and articles of daily use have in the course of their manufacture been treated with the substance under consideration. Gambier is, moreover, a valuable medicine, and the more carefully prepared qualities are largely used in cases of diarrhoea, dysentery, relaxed throat, &c.

Similar in chemical composition to ordinary catechu, gambier is obtained by boiling the leaves and twigs of the *Uncaria Gambier* plant, a native of the East, and found either wild or cultivated in Malacca, Penang, and Singapore, as well as in Java and Sumatra. *Uncaria Gambier* belongs to the natural order *Rubiaceæ*, in which are also embraced the cinchonas or quinine-yielding plants, as well as coffee. The flowers are small and crowded together, and the plant itself is a strong shrubby climber.

Gambier appears to have been used in India for dyeing purposes from a very remote period; but its introduction into Europe only commenced with the present century.

The manufacture of gambier is still conducted on very primitive lines, and with the crudest appliances. A plantation is generally cropped some eighteen months after being planted; and cropping may be repeated as often as four times a year, the operation being oftentimes conducted with no sparing hand. The remaining process is exceedingly simple, the leaves, twigs, &c., being boiled in a rough caldron until the water in which they are steeped becomes syrupy. The extract is then drawn off, cooled, and stirred until crystallisation commences. The gambier is then cut by hand into cubes, dried either by simple exposure to the air or by smoke, and packed in mats for exportation.

The life of a gambier plantation averages only some ten years; and in fifteen years at latest it is abandoned. The capital required is very small,

and the returns are rapid, hence the favour with which the industry is regarded by the Chinese.

Gambier has a pale brown or yellow colour, with an even earthy fracture, the cubes of commerce being about an inch square. There is much variation in the quality of the gambier offered for sale, and the art of adulteration has penetrated this branch of industry. At one time there are stated to have been eight hundred gambier plantations in Singapore alone; and the amount of gambier imported into Great Britain from the Straits Settlements alone is no less than twenty thousand tons per annum.

Gambier is undoubtedly a valuable commercial product; and with improved appliances for its manufacture, and judicious management of the plantations, can hardly fail to develop largely at no distant period.

F O R E V E R.

Two little streamlets leapt and flowed,
And sang their songs together;
They felt alike the summer rays,
And bore the stormy weather;
The selfsame blossoms decked them both
In colours rich and rare;
And in each stream the song-birds wood
Their bright reflections there.
And on, and on, and on they danced,
Each leaping toward the river,
And then they met to kiss and part
Forever and forever.

Two human lives, two kindred hearts,
By destiny's decree,
Met in the spring of life, to learn
Its deepest mystery.
They dreamed their morning dreams of hope,
Through fair unclouded weather;
They opened love's bewitching book,
And read it through together;
They saw in one another's eyes
A deep unspoken bliss;
And from each other's lips they took
Love's ever-ready kiss.

And then the fate that crushes all
The sweetest pleasures here,
Turned hope's glad music to a sigh,
Its glory to a tear.
It stepped between them; ah! it mocked
The love it could not kill;
It bade them in its fury live,
And love, and suffer still.
They tried with outstretched hands to span
Fate's wide unyielding 'Never.'
The voice of destiny replied:
'Forever and forever.'

Mine is no wild imagined theme,
No idle fancy flight,
It lives through daylight's busy hours,
And haunts the silent night.
The wail of sorrow fills the air,
It rests, it ceases never;
It wrings some soul, it breaks some heart,
Forever and forever.

LIZZIE BERRY.

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